

Does the rate of collisionless reconnection depend on the dissipation mechanism?

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The importance of the electron dissipation effect on the reconnection rate is investigated in the general case of asymmetric collisionless magnetic reconnection. Contrary to the standard collisionless reconnection model, it is found that the reconnection rate, and the macroscopic evolution of the reconnecting system, crucially depend on the nature of the dissipation mechanism and that the Hall effect alone is not able to sustain fast reconnection.